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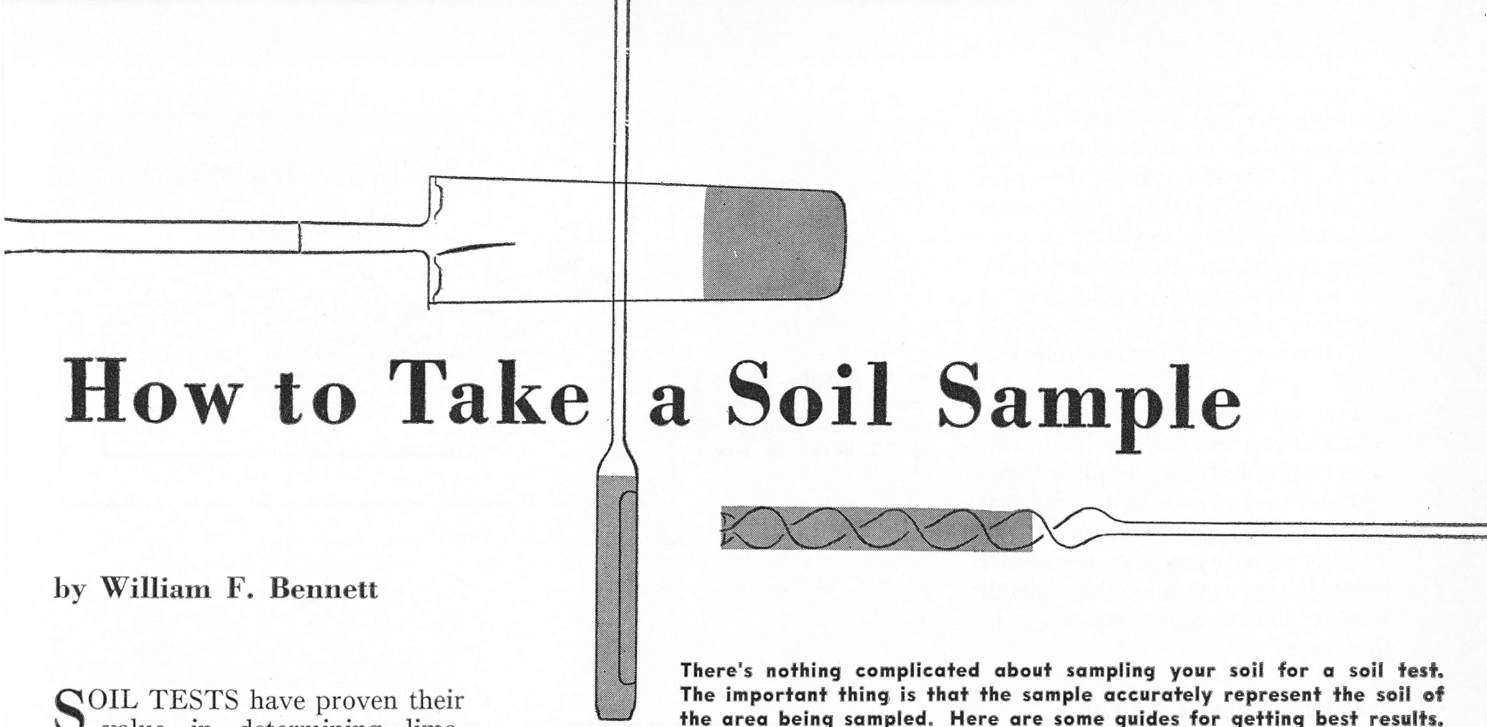
William F. Bennett
Iowa State College



How to Take a Soil Sample

by William F. Bennett

There's nothing complicated about sampling your soil for a soil test. The important thing is that the sample accurately represent the soil of the area being sampled. Here are some guides for getting best results.

SOIL TESTS have proven their value in determining limestone and fertilizer needs for soils. But the results and conclusions from them can be no better than the samples on which the tests are made. Results from tests made on poorly taken samples may actually be misleading—besides being a waste of time and money.

There's nothing complicated about taking a soil sample. It's quite simple. The important thing to remember is that the sample you take should accurately represent the soil of the area being sampled.

Assuming you intend to use the results of a soil test, it's only common sense that the samples you take should be properly collected for the results to be of most value to you. Here are the "how's" and "why's" of the recommended method to take a soil sample.

Sample Uniform Areas

Each sample you submit for testing should represent a uniform area of soil. Soil differences important in sampling are indicated by differences in drainage, slope, color, texture and degree of erosion. Consider also differences in yields, crop growth, crop history and in past treatments such as liming, manuring and fertilizing.

For example, crops grow better on a soil that's well drained than on one that's poorly drained. So don't mix samples from a well-drained soil with those from a poorly drained soil. Also, soils on the slope differ from those on the flat upland. Sample them separately.

With these factors in mind, size up the area you intend to sample before you begin sampling. In general, a uniform area of soil will seldom be larger than 5 to 10 acres. So limit the size of the area for one sample to less than 10 acres.

Get Good Sample

Take 15 to 20 samples in each uniform area. These are subsamples and, when thoroughly mixed, will give a composite sample representative of the fertility status of the whole area.

Take the subsamples or "cores"

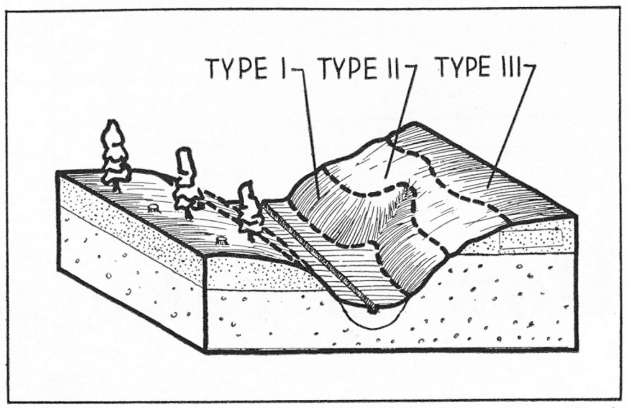
WILLIAM F. BENNETT is an associate in agronomy and is affiliated with the Iowa State College Soil Testing Laboratory.

Brief Soil Sampling Guide

- Each sample submitted should represent a uniform soil area—usually from 5 to 10 acres in size.
- Sample 15 to 20 locations in each uniform area to obtain a composite sample which will accurately represent the area being sampled. Take samples from the plow layer—about 6 inches deep.
- Use a soil probe, a soil auger or a garden spade to take samples.
- Don't take subsamples from areas that are unusual or different from the rest of the area being sampled. Should you want a separate soil test for such an area, sample this area separately and don't mix it with other samples.
- Mix the subsamples from one uniform area thoroughly. Place a portion of the mixed composite sample in a soil sample box and send it to the Iowa State College Soil Testing Laboratory at Ames or Cedar Rapids.
- Be sure to send a completed soil sampling information sheet along with the samples.
- Allow about 4 to 6 weeks for conditioning and testing the samples and for return of the results.

at random over the area — being careful to avoid unusual spots in the field. Don't follow the rows in taking subsamples; you may have added extra fertilizer in previous years on those particular rows. Zig-zag across the field in taking samples. In corn fields, take the samples from between the rows.

For each subsample you take, scrape away the surface litter and take a sample from the plow-layer —about 6 inches deep. Subsoil samples aren't necessary. Soil Testing Laboratory personnel know in general how the subsoil samples will test for most areas in the state.

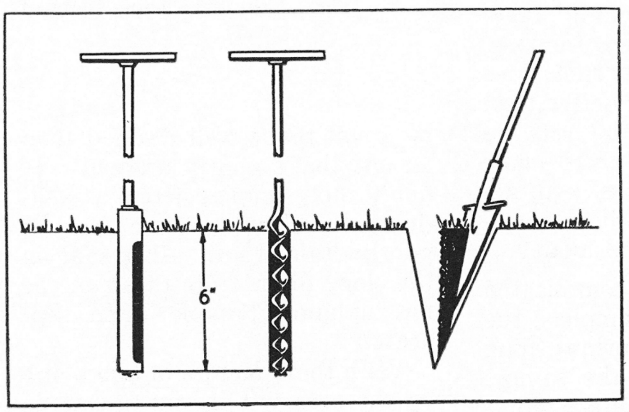


Each sample should represent a uniform soil area—usually 5 to 10 acres in size.

Avoid Unusual Areas

Avoid unusual areas such as dead furrows, back furrows, old fencelines, eroded spots, old haystack bottoms, field depressions and terraces when taking subsamples. These areas aren't representative of the field and shouldn't be included in the main sample.

If there's an unusual area, such as a small sandy area in a field, don't take any subsamples from it unless you intend to fertilize it differently. If you plan to do this, take a separate sample for this area but don't mix it with the ones from surrounding areas.



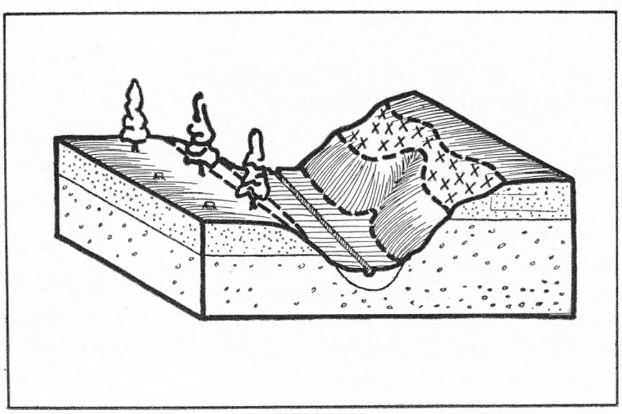
Use a probe, auger or spade to take samples to a depth of about 6 inches.

Sampling Tools . . .

A number of tools can be used to take soil samples. The handiest tools are a soil probe or a soil auger. A soil probe works best when the soil isn't too wet or too dry. Your county extension director can tell you where you can get these tools.

If you have neither of these, you can take soil samples with a garden spade. Dig a V-shaped hole. Then take a 1-inch slice of soil from the smooth side of the hole. Discard a portion of the slice from both sides of the spade. Put the remaining soil in the container as one subsample.

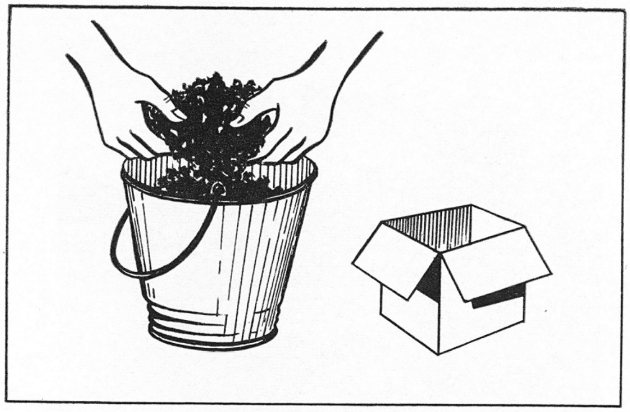
If you plan regular soil sampling and testing, you may prefer to make a soil auger. Take an old 1-inch wood bit. Cut off the center bite screw and sharpen the cutting edges. Weld the bit onto a ⅜-inch pipe or steel rod about 36 inches long. Add a "T" joint to the top of the pipe or rod and add short lengths of pipe for a handle.



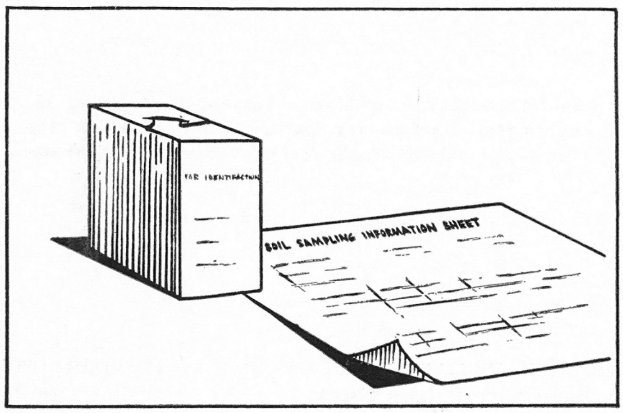
Sample 15 - 20 locations in each uniform area; avoid dead and back furrows, old fencelines, etc.

Use Clean Container

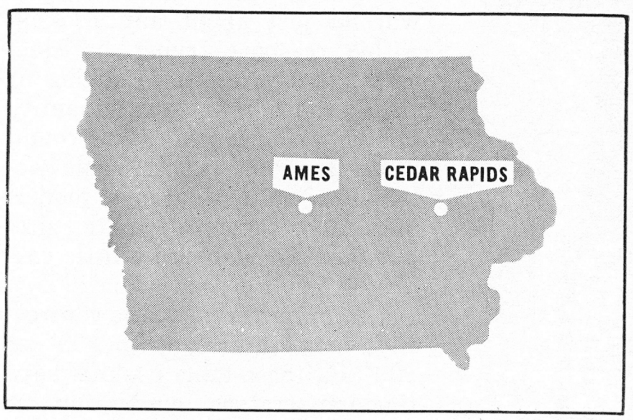
Mix the 15 to 20 subsamples together in a *clean* container for a



Mix subsamples thoroughly in clean container and fill soil sample carton.



Be sure to complete soil information sheet and to send it in with sample.



Package securely and send to Iowa State College Soil Testing Laboratory at Cedar Rapids or Ames.

representative composite sample. Containers such as buckets and paper sacks are satisfactory. But be sure they're large enough so that the sample can be well mixed.

After mixing, take out enough of the composite sample to fill a soil sample box. Be sure to mark the sample number on the container as soon as the sample is taken. Allow the sample to air dry at room temperature; a gentle breeze from a fan blowing over the sample can be used to hasten drying. *Don't use heat* to dry the sample; this will lead to inaccurate soil test results.

Complete Information Sheet

Mailing cartons, information sheets and soil sample boxes may be obtained from your county extension office, the county ASC office, the county SCS office, your school's vocational agriculture instructor or from your fertilizer dealer.

Obtain a soil sampling information sheet from one of these sources. Fill it out completely and submit it with the sample. This sheet gives the Soil Testing Laboratory information on where the sample came from, the physical condition of the soil (such as slope and drainage) and past treatment (such as cropping history, manuring and fertilizing). This information is important when it comes to making the most meaningful and useful fertilizer recommendations.

There's a place on this sheet to draw a map—showing the location of the sample areas with respect to farm buildings, drainage ways and other areas. This map can be drawn while dividing the field for sampling. The map will often be useful in interpreting the results of the test. Be sure to keep a copy of the map for yourself as a record of where the samples were taken.

Allow Time . . .

Allow about 4 to 5 weeks after the samples reach the Soil Testing Laboratory for the samples to be tested and the recommendations made. During the fall and winter months, allow an additional week or two because of the large number of samples submitted during these months.

This length of time is needed for the conditioning and accurate testing of a sample. So take your samples well enough in advance of planting so that the results can be returned in time to be useful.